

Small Probes for Orbital Return of Experiments (SPORE), Phase I

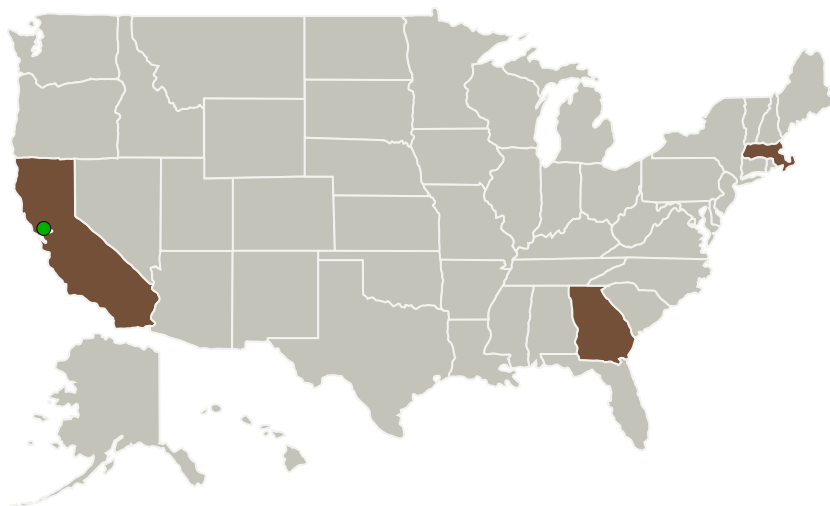
Completed Technology Project (2011 - 2012)



Project Introduction

Analogous to the CubeSat standardization of micro-satellites, the SPORE flight system architecture will utilize a modular design approach to provide low-cost on-orbit operation and recovery of small payloads. The Phase 1 investigation will evaluate a scalable flight system architecture consisting of a service module for on-orbit operations and deorbit maneuvering, and an entry vehicle to perform entry, descent and landing (EDL). The design space for the SPORE system architecture is shown in Figure 1. Flight system designs capable of accommodating payload volumes ranging from 1-unit (1U) dimensions of 10x10x10 cm to 4U dimensions of 20x20x20 cm will be investigated. The proposed system will be capable of flight operations and return from low-Earth orbit (LEO) and geosynchronous transfer orbit (GTO). The SPORE design can be launched as a primary or secondary payload into LEO or GTO, or it can be deployed from the International Space Station (ISS).

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California
Georgia Institute of Technology Center for Space Systems	Supporting Organization	Academia	Atlanta, Georgia
Georgia Institute of Technology-Main Campus(GA Tech)	Supporting Organization	Academia	Atlanta, Georgia

Primary U.S. Work Locations	
California	Georgia
Massachusetts	

Project Transitions

▶ **February 2011:** Project Start

✓ **February 2012:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/138511>)

Project Management

Program Director:

Jason L Kessler

Program Manager:

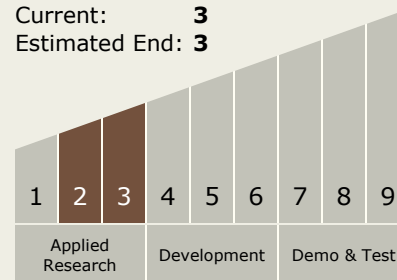
Carlos Torrez

Principal Investigator:

David W Spencer

Technology Maturity (TRL)

Start: **2**
 Current: **3**
 Estimated End: **3**



Technology Areas

Primary:

- TX09 Entry, Descent, and Landing
 - TX09.4 Vehicle Systems
 - TX09.4.6 Instrumentation and Health Monitoring for EDL

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Target Destinations

The Sun, Earth, The Moon,
Mars, Others Inside the Solar
System, Outside the Solar
System